EPA'S Arkansas Regional Haze FIP

November 2016

Background: Regional Haze

- Regional haze is visibility impairment caused by air pollution from numerous sources located over a wide geographic area.
  - Sources include major and minor stationary sources, mobile sources, and area sources.
- Goal of the regional haze program is to improve visibility at Class I areas by controlling some of these sources.
- Arkansas has two Class I areas:
  - Caney Creek Wilderness Area is located on the southern edge of the Ouachita National Forest, approximately 120 miles west of Little Rock.
  - Upper Buffalo Wilderness Area is located in the Ozark National Forest, approximately 100 miles northwest of Little Rock.
- Sources in Arkansas also impact the Hercules-Glades Wilderness Area and the Mingo Wilderness Area, both located in Missouri.

Background

- In a final action published on March 12, 2012, we partially approved and partially disapproved a regional haze SIP and a visibility transport SIP submitted to us by Arkansas in 2008.
- The CAA requires EPA to promulgate a Federal Implementation Plan (FIP) when a state is unable to submit a fully approvable SIP that meets all regulatory and statutory requirements.
- We proposed a FIP to correct the disapproved portions of the Arkansas SIP in a proposal published on April 8, 2015.
- After carefully considering the comments we received on our proposal, we issued a final FIP that was published on September 27, 2016.

Summary of Our Regional Haze FIP

- FIP requires SO2, NOx, and PM Controls for Arkansas' BART Sources (9 units at 6 facilities)
  - AECC Carl E. Bailey Unit 1- Augusta, AR (located approx. 60 mi northeast of Little Rock)
  - AECC John L. McClellan Unit 1- Camden, AR (located in the southern part of the state, approx. 110 mi southwest of Little Rock)
  - AEP Flint Creek Unit 1- Gentry, AR (located in the far northeastern part of the state)
  - Entergy White Bluff Units 1 and 2, and Auxiliary Boiler- Redfield, AR (located in the central part of the state, approx. 25 mi south of Little Rock)
  - Entergy Lake Catherine Unit 4- Malvern, AR (located approx. 45 mi southwest of Little Rock)
  - Domtar Ashdown Mill Power Boiler 1 and Power Boiler 2- Ashdown, AR (located in the far southwestern part of the state, approx. 150 mi southwest of Little Rock)
- FIP also requires SO2 and NOx Controls under the Reasonable Progress Requirements for one power plant in Arkansas
  - Entergy Independence Units 1 and 2- Newark, Arkansas (located in the northeastern quadrant of the state, approx. 80 mi northeast of Little Rock)
    - Reasonable Progress factors: (1) costs of compliance, (2) time necessary for compliance, (3) energy and non-air quality environmental impacts of compliance, and (4) remaining useful life of the source

Red= coal fired unit
Blue= oil/natural gas fired unit
Green= natural gas fired unit
Orange= other

Details of the SO_2 and NOx Controls Required by the Regional Haze FIP

- SO_2 Controls:
  - White Bluff Units 1 and 2, Flint Creek Unit 1, and Independence Units 1 and 2- installation of SO2 scrubber retrofits.
  - Domtar Ashdown Mill Power Boiler No. 2- SO2 scrubber upgrade w/use of additional scrubbing reagent.
  - AECC Carl E. Bailey Unit 1 and AECC John L. McClellan Unit 1- limitation on the sulfur content of the fuel burned.
  - White Bluff Auxiliary Boiler and Domtar Ashdown Mill Power Boiler No. 1- SO2 limit that reflects baseline emissions.

- NOx Controls
  - White Bluff Units 1 and 2, Flint Creek Unit 1, and Independence Units 1 and 2- installation of Low NOx Burners/Overfire Air
  - Domtar Ashdown Mill Power Boiler No. 2- installation of Low NOx Burners
  - Lake Catherine Unit 4- use of a combustion technique called Burners out of Service
  - White Bluff Auxiliary Boiler, AECC Bailey Unit 1, AECC McClellan Unit 1, and Domtar Ashdown Mill Power Boiler No. 1- NOx limits that reflect baseline emissions

Summary of our FIP on Interstate Transport of Visibility Impairing Pollution

- Basic requirement:

  Ensure air pollution sources in Arkansas don't interfere with other states' measures to protect visibility.

- Arkansas intended that its regional haze regulation, the Air Pollution Control and Ecology Commission Regulation 19 Ch. 15, satisfy this requirement.
- Since the State's regional haze regulation included the emission controls we disapproved in our action on the State's Regional Haze SIP, we partially disapproved the State's Interstate Transport of Visibility SIP in our March 2012 action.
- Our proposed FIP action addresses the controls we previously disapproved and we believe satisfies the interstate transport of visibility impairing pollutants requirement.

Other Benefits of Our FIP

- Sulfur dioxide (SO_2) is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%).
- SO_2 can cause adverse respiratory effects include narrowing of the airways which can cause difficulty in breathing and increased asthma symptoms.
- Exposures to NOx over short periods can aggravate respiratory diseases (particularly asthma), leading to respiratory symptoms, hospital admissions, and visits to emergency rooms.
- We estimate that our FIP will reduce the SO_2 emitted by Arkansas sources by approximately 68,500 tons per year
- We also estimate that our FIP will reduce the NOx emitted by Arkansas sources by approximately 15,100 tons per year.